FAA AVIATION NEWS

DECEMBER 1971 / JANUARY 1972

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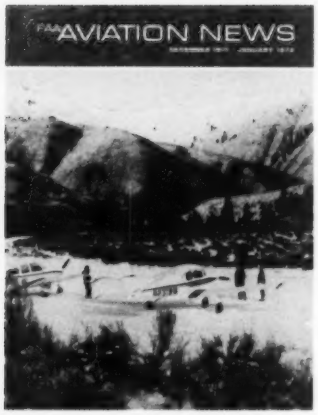

COVER:
The hills of home beckon at Yuletide, but watch out for inflight icing en route. Page 4.

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION VOL. 10, NO. 8

CONTENTS/DEC. 71-JAN. 72

3 How is the Weather Out There?

4 Ice Ain't Nice

6 Atoms and Airplanes

8 Aeronautical Fender Bending

10 Famous Flyers: The Polar Eagle

12 Personal Inspections: The Big Stoop

13 Pilot Briefs

14 News Log: Immunity for Near Midair Reports to End . . . Fog Dispersal Methods Being Tested . . . Tighter Safety Requirements for Large Aircraft . . . Kitty Hawk Commemoration at Kill Devil Hill

15 Flight Forum

A snow bun is no fun. Page 4

Off and rolling. Page 8

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How is the Weather Out There?

You are flying over the Tennessee River at 6,000 feet near the end of a VFR flight from Atlanta to Memphis, with all the weather stations along your route reporting pretty fair VFR weather. Visibility at Memphis is only about five miles, but that is not unusual for an industrial area, and it does not worry you. What *is* of concern is the cloud buildup dead ahead, where the visibility seems to be deteriorating in a way that was not mentioned in forecasts. You pick up your mike and talk to the flight service station at Muscle Shoals, Ala., some 30 miles behind you. They give you the latest weather reports along your route and the available forecasts. *Any pilot reports?* No, none.

You ask yourself the same questions pilots have been asking since the first cross-country flight. Should you go on ahead, or turn back? Is this just a local cloud buildup? Can you get around it, and which direction? Rather than guess, you play it safe and turn back to Muscle Shoals to wait, and hope and wonder.

But suppose you did not have to guess? Supposing instead of just frowning at the weather and poor visibility ahead you could pick up the mike, tune in 122.0 and say *"Weather, this is Comanche 1922T, and I have a problem. . . ."* And after explaining your situation to them you received the following:

"Comanche one nine two two Tango, this is Muscle Shoals Radio. Our radar shows scattered thundershowers of moderate intensity developing in your approximate area. They are north of your present course. Suggest you divert a few miles south. Nothing reported around Memphis except some smoke and haze. Pilot reports indicate conditions between the showers are good. The restricted area off to your left is from 8,000 feet up, so stay beneath that."

You answer a few questions about your location and the weather conditions you have observed—your input to the network of *en route weather advisory service*, or EWAS—and then proceed on your way.

To any pilot who has faced uncertain weather this kind of service sounds like a dream, but it is a real-life program, one that pilots will begin utilizing soon. Initial planning is about complete, most locations have been set, and the first of FAA's flight service stations which will offer EWAS will begin doing so shortly after the first of the new year.

EWAS will have a discrete weather frequency, 122.0 MHz, for use at all stations. Pilots will use it to talk day or night directly to a briefer who is specially trained and equipped to provide weather information along the entire route. The EWAS station will be equipped with weather radar and will be either co-located with, or have a hot line to, a National Weather Service forecaster for quick consultation in special cases. Major objective of the new service is to reduce weather-related accidents, which account for about a third of the fatal crashes in general aviation.

The new service will be most helpful for VFR flights, although it will benefit all civilian pilots. The special frequency is not to be used for normal weather briefing, which should be done before takeoff, nor is it to be used to file flight plans. En route pilots should be able to pick up a lot of useful information just by monitoring the weather frequency which will, hopefully, become a kind of "weather party-line."

The briefers will be flight service specialists, especially trained by National Weather Service meteorologists. Nevertheless, the EWAS briefer will be just that—he will not be acting as a weather forecaster. For special or complex situations he will consult with a Weather Service meteorologist.

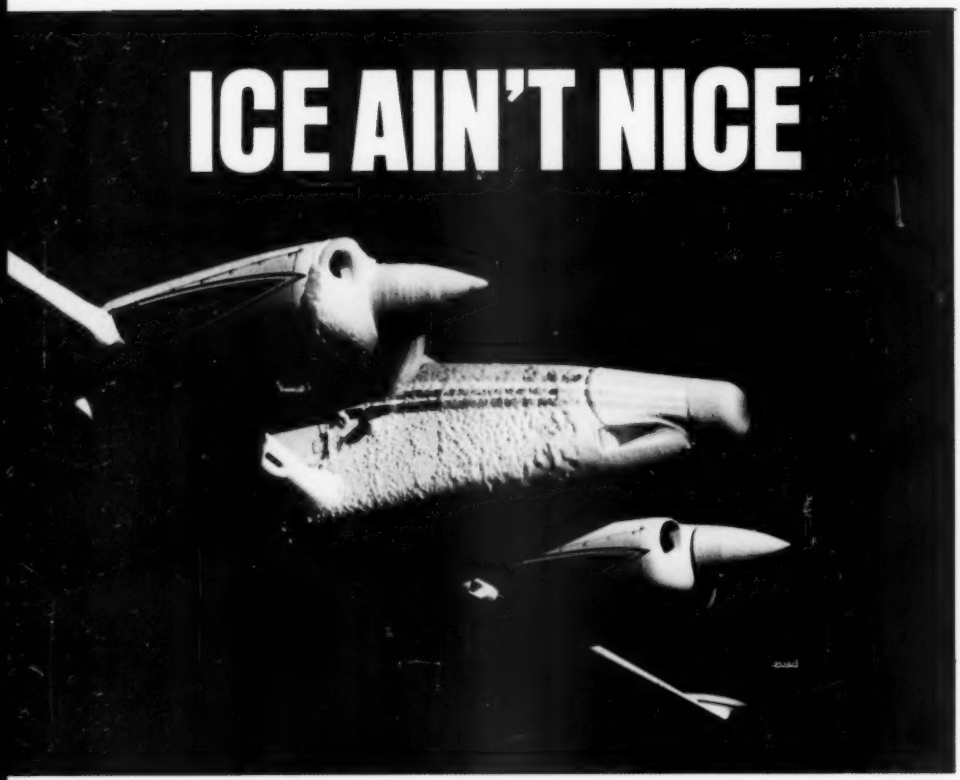
The regular FSS designation will normally be used in call-ups ("Los Angeles Radio . . .") but in an emergency the pilot need only tune 122.0 and say, *"Weather? This is Comanche 1922 Tango . . ."* and the nearest EWAS station will answer the call as "—— Radio."

Frequency crowding will be examined after the service is in action; if it is found that a single channel is inadequate, a second one may be added—perhaps one for high-altitudes and one for low-altitudes.

When complete the EWAS net will probably consist of 44 FSS's and about twice that many remoted locations, which should cover virtually the entire conterminous (adjacent) United States. Service will be installed in four phases over as many years. Phase I will include four stations on the West Coast and several in the critical northeast states. Phase II will include the balance of the states east of the Mississippi. Phase III will cover states between the Rockies and the Mississippi, and Phase IV will offer service over the Rockies. Because the locations of these mountain stations will be so critical, their exact sites will be determined only after extensive investigation.

Pilots will be notified on the start-up of the new weather briefing service in their area by Pilot Briefs in this magazine, and by NOTAMS and news releases. R.T.

ICE AIN'T NICE



Inflight icing is no piece of cake

Pulsating rubberized boots on leading edges of wings discourage ice formation. For IFR use, pitot tube (circle) should have a heater. Ice forming inside tube could invalidate important panel instrument readings.

In much of the country there are more good flying days in winter than any other season for a simple reason—thunderstorms are less active in cold weather. There are many crisp, bright days when the air is stable and the visibility looks like about half a light-year, at least. Nevertheless, flying conditions change with great suddenness in winter, so that weather predictions have to be monitored closely. For the IFR pilot who intends to fly through clouds, winter brings on the increased likelihood of inflight icing. Although de-icing equipment is not required for IFR operations on light aircraft, it is highly recommended for winter flight.

For the VFR pilot, there are also unsuspected winter weather hazards that can produce "instant IFR" conditions and zero visibility, in the absence of adequate windscreen defrosting equipment.

In addition to loss of visibility, a buildup of inflight icing can lead to virtual loss of control of the aircraft. The increase in weight is not as serious a problem as the distortion of airfoil surfaces (including the propeller). As little as half an inch of ice accumulation on the leading edge of the wing (which can take place in one or two minutes) can cause a loss of as much as 50 percent of lift. The degradation of aircraft performance is also cumulative: increased drag means lowered airspeed, while loss of lift means stall speed goes up.

At the same time, the pilot may be hampered by the unreliability of key panel instruments, such as airspeed indicator, altimeter, turn and bank indicator, etc., due to icing of the pitot tube or static ports. At this point he may well begin to wonder why he had paid so little attention to the weather prediction of possible "light to moderate icing in clouds."

There is no type of icing prediction which can be taken lightly. "Light" icing may be handled safely by aircraft with adequate deicing gear, but it can become a nightmare for non-equipped planes. "Moderate" icing is more severe than it sounds; few light aircraft are equipped to deal with it for any extended period of flight. Flying into "severe" icing conditions is sheer folly, an open invitation to disaster. In fact, most experienced pilots make it a rule never to fly intentionally into known icing conditions of any kind, except in an emergency. They will sit out the weather on the ground, or fly around it, even if this entails a detour of several hundred miles.

Inflight icing commonly occurs as a result of freezing rain or sleet adhering to the airplane. The precipitation may begin as rain in a warm, upper layer of cloud and solidify as it passes through a subfreezing layer. Later on, before the precipitation reaches the ground it may change back to rain, as it encounters a warm body of air near the surface. There is no way that weather observers or ground facilities can pinpoint the exact elevation of freezing and above-freezing layers of air, even with the aid of pilot reports (which do help enormously), since air currents in clouds are constantly shifting.

There are also several less obvious sources of inflight icing, where no precipitation is apparent. Winter clouds may be made up of tiny (microscopic) droplets of supercooled moisture—moisture that is actually many degrees colder than the freezing point of water. When these supercooled droplets are shattered by impact with an airplane, they may freeze onto the plane's surface. The most severe icing of this type occurs in clouds with a temperature range between about 15°F. and 32°F.

Another unexpected weather condition that leads to icing is called *sublimation*. This is a process of physical change, as from a gaseous state to a solid state (i.e., from water vapor to ice) without passing through the intermediate, or fluid, state. This takes place in a body of subfreezing air with a high relative dew point or moisture content, even when no visible cloud is present. The energy accompanying the passage of an aircraft through such a layer of air may trigger the change from vapor to ice, resulting in an instantaneous coating of the aircraft and perhaps a complete loss of cockpit visibility.

VFR pilots who encounter any form of icing are well advised to turn tail and return to their base. For the IFR pilot who may unexpectedly encounter icing enroute, or while climbing to an assigned altitude, or descending to land, the proper evasive action is more difficult to decide. *Where is the nearest warm body of air—above or below?*

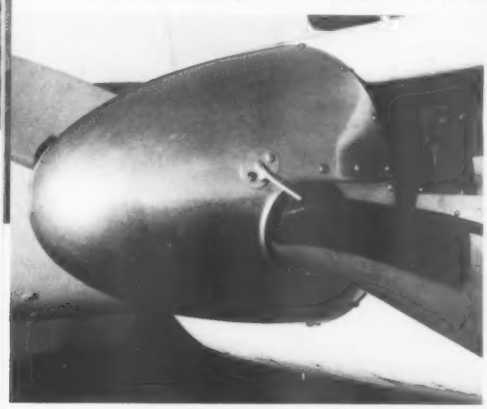
The answer will depend in large part on the severity of the icing and the service ceiling of the aircraft, as well as terrain conditions. If unable to obtain specific guidance from the air traffic service, many pilots will opt for the higher altitude. (If you descend to your minimum en route altitude without finding warmer air, you may pick up too much ice to climb out of trouble. Remember what icing on the wing can do to lift capability; you may not be able to climb within 5,000 feet of your normal ceiling.)

The presence of oxygen on board is an important consideration. If you find warmer air well above 10,000 feet and have to remain at this altitude for any length of time, which may well be true with severe icing, you will need the support of the O_2 bottle.

Anti-icing and de-icing equipment usually consists of rubberized "boots" on the wings and tail surfaces and propeller (the boots dislodge ice by vibrating or pulsating), heating elements, and liquids. The latter are commonly used in light aircraft on propellers where the combination of centrifugal force plus a non-sticking surface is usually sufficient to prevent ice formation. Unprotected propellers are an open invitation to engine trouble in winter flying; any uneven ice buildup will produce harmful vibrations that could damage the crankshaft and even shut down the engine.

Liquid ice repellents for protecting cabin windows are also available. Before applying this material the pilot should make certain it will not harm plastic surfaces.

Rime ice (on cowling) can block air intake of engines, build up heavily on windshield. Below—de-icing fluid is sprayed onto prop.



The windscreen defrosting system is usually a hot air system drawing its heat from the engine. This means that when the engine is turning over slowly, during an extended approach, less heat may be available. Warming the windscreen thoroughly prior to letdown is a good precaution against encountering severe icing near the ground during the final landing phase. Instances have been reported where desperate pilots have punched a hole through the windscreen or side window in order to grope their way down to the runway.

For similar reasons, having the windscreen defroster "full on" is a good pretakeoff procedure in winter, even when no clouds are visible overhead. Recall the phenomenon of sublimation—crystalization of invisible water vapor which, under susceptible conditions, can coat your airplane with ice about as fast as you can say "Jack Frost!" or some more expressive phrase.

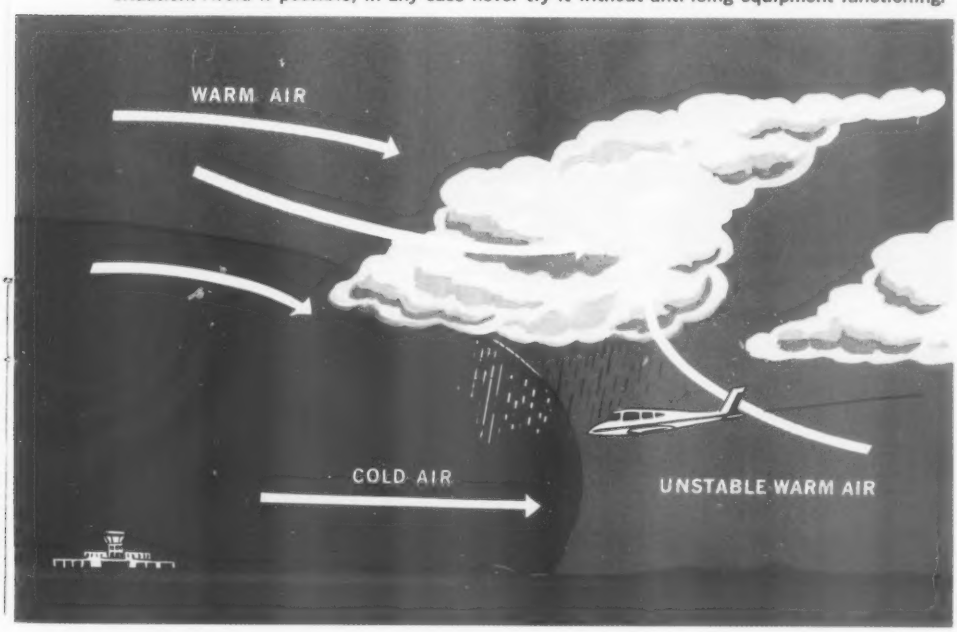
Pitot tube heaters, when installed, should also be "on" continuously whenever icing conditions are present. Ice may form inside the tube, unobserved by the pilot, whose first intimation of trouble may come in the form of an unintentional stall, due to an erring airspeed indicator, or a frightening close call with a mountainside, because of an unreliable altimeter. (Incidentally, pitot tube covers, when not removed during the preflight, can be just as troublesome.)

In installing anti-icing or de-icing equipment on an airplane the owner should be guided by the manufacturer's recommendations. Non-approved equipment might not be compatible with existing systems.

But even the finest of defrosting and de-icing equipment has its limitations when exposed long enough to the full fury of winter chill. The best, and also the cheapest, anti-icing device ever invented is the will to say "No go" when a winter flight that *can* be postponed would involve flying through clouds in freezing air temperatures. Anyone who has been through the experience of seeing an airplane in flight turn into a virtual igloo will tell you,
"Ice ain't nice."

L. D. G.

Letting down from warmer air through a cold front in winter has all the ingredients of an icing situation. Avoid if possible; in any case never try it without anti-icing equipment functioning.



ATOMS and AIRPLANES

What the pilot should know about radioactive air cargo

At 10:47 on the morning of July 2, 1970, the tower at Washington National Airport cleared a twin-engine *Skyvan* to land on Runway 15.

The British-made aircraft, a part of a small air taxi cargo fleet, was carrying about 3,000 lbs. of cargo, most of it in cartons and small boxes. The flight from New York's JFK Airport had been VFR until the *Skyvan* reached the vicinity of Atlantic City. The crew of two, pilot and co-pilot, had then air-filed an abbreviated IFR flight plan as the plane proceeded to Washington on that foggy and hazy summer day.

The Washington tower controller had given the *Skyvan* a VOR (non-precision) approach, and the crew radioed back that they had the runway in sight. The plane passed the sprawling Pentagon Building on its right, and was descending over Roaches Run, a small lagoon and waterfowl sanctuary located immediately in front of the airport Runway 15. Suddenly the plane nosed down sharply and rolled left until the wings were almost vertical. It went into a steep, diving bank, and plunged helplessly into Roaches Run, cartwheeling onto its right wingtip before it sank beneath the surface of the water. Both pilot and co-pilot were killed instantly on impact.

The report of the National Transportation Safety Board said that "the probable cause of the accident was the loss of effective elevator control due to the forward shift of improperly secured cargo when the aircraft was placed in a steep nosedown altitude during a landing approach in reduced visibility conditions." (After the accident, FAA again instructed all air taxi cargo operators to stow and secure their cargo properly in accordance with FAR Part 135.117.)

One alarming aspect of this tragic accident became evident during the rescue operation, long before the investigation was completed. Divers who went into the water to recover the bodies discovered among the cargo a package marked with the Department of Transportation's special label warning of radioactive materials. A quick check with the air cargo company revealed that there had indeed been on board three boxes of radioactive material in the form of pharmaceutical radioisotopes en route to several Washington hospitals. If these packages had broken open during the crash there was now the possibility of radiation exposure and injury to anyone in the area.

Investigators on the scene phoned the Atomic Energy Commission for assistance, and the Interagency Radiological Assistance Plan went into operation. The AEC gave instructions for storing the recovered package of radioactive materials safely in a hangar at the airport while the closest radiological emergency team at Rockville, Md., was dispatched to the accident site.

The team determined that the first box had survived the crash intact and there was no danger from it. A radiation survey was made over the entire accident area by the U.S. Public Health Service, while divers made repeated attempts to locate the missing packages from the bottom of Roaches Run. The aircraft had broken apart, and many sections of it, as well as the cargo, were buried in the mud and slime 15 to 18 feet below the surface.

As the divers worked throughout the afternoon and early evening they finally located a second package of radioactive material, also intact. The records of the shipping company indicated positively that a third package had been on board the aircraft, but it was apparently buried deep in the mud and has never been recovered. However, the continued use of radiation meters indicated that there was no radiation contamination in the area and it was presumed that the package was still secure. At ten o'clock that evening the radiation alert was cancelled and normal crash recovery operations were resumed.

Swift Shipment Vital

Since the peacetime use of radioactive materials was developed in 1946, there has been an expanding use of air transportation for shipment. Such materials are being used increasingly in industry, manufacturing, and in hospitals for curative and diagnostic procedures. One of the principal reasons for the popularity of air transport is the fact that many radioactive materials have only a short "half-life," and if they do not reach their destination in a day or two they will be useless on arrival. This is a particularly serious problem in the case of materials destined for hospitals. As a result, thousands of small quantities of radioactive materials are shipped by air each year in the United States, and this material is often in transit at civilian airports used by general aviation.

Insecure cargo (part of it radioactive) shifted forward during the approach to Washington National Airport, throwing the plane so far off balance that the pilot could not recover. *Skyvan* crashed in Roaches Run (arrow).

As a result of AEC's precautionary regulations, as well as those of the Department of Transportation, no danger is associated with the ordinary air shipment of radioactive materials. However, in the case of a crash, like the one at the Washington National Airport, there could be the danger of radiation exposure to bystanders if one of the packages broke open and the radioactive material was released. When such an accident does occur, there are a few simple safety measures which minimize the danger of radiation exposure.

Ordinary Procedures. There have been many misconceptions and unnecessary fears about the air transportation of radioactive materials. But it should be understood that only specifically defined limited quantities of radioactive material may be transported by air, and there is no danger of a radioactive explosion from these small quantities.

The amount of any particular radioactive material which can be carried on a single aircraft is limited by the Department of Transportation. The material must be encapsulated in sturdy metal or plastic containers which retain the radioactive material. When additional radiation shielding is needed the inner package will be placed in a lead container. The total package often weighs hundreds of pounds and it is designed to be fire and crash resistant.

These containers have been dropped from moving vehicles and even run over by taxiing aircraft without the release of any radioactive material. The protective value of these safety precautions was graphically illustrated by the *Skyvan* accident, where radiation containers survived the crash intact, despite a severe impact.

Packages which contain radioactive materials must also be clearly marked with special DOT labels which identify the contents. Those packages which may contain alpha, beta, gamma or neutron particles have a special warning label advising people not to remain within 15 feet. The pilot of the aircraft must be advised of the presence of radioactive cargo on board, and the shipper is required to certify with the airport officials that he has complied with all DOT regulations about the transportation of radioactive materials.

Despite these safety precautions, there is still the possibility that the container could be broken open in the event of a particularly violent impact or intense heat. In this case, the radioactive material might be released from the container and the area would then be said to be contaminated. Persons in the area could suffer radiation injury, either by direct exposure to the radiation or by breathing or swallowing radioactive particles.

Radiation injuries can range all the way from minor burns to a serious breakdown of body cells. It is important to note that internal radiation exposures, particularly those caused by breathing radioactive particles, leave no external mark which is immediately visible. However, the limited amounts of radioactive material allowed in each air shipment today in accordance with DOT regulations are highly unlikely to cause any of the more serious types of radiation injuries.

Emergency Measures

The AEC and FAA have developed a number of precise emergency measures to be taken at an airport when an accident occurs involving a plane carrying radioactive material, and it is important for the private pilot to be aware of these measures so he can cooperate with them:

1. Airport officials should immediately notify FAA and seek assistance from the AEC. The AEC maintains a 24-hour a day radiological emergency response. At a small airstrip, or in the case of an emergency landing, the task of notifying the two agencies may fall on the private pilot, who may also be in a position to direct emergency activities pending the arrival of authorities.

2. When there is smoke or fumes, those engaged in the rescue operation should use a self-contained breathing apparatus; or if that is not available, an ordinary gas mask or dust respirator should be used. Otherwise some protection can be obtained by covering the nose or mouth with several layers of dry towelling, or with at least eight layers of a cotton handkerchief.

All rescuers who are exposed to possibly contaminated smoke, fumes, or dust should be hosed down immediately even if they are wearing fire-fighting protective clothing; or if they are not, they should take showers, paying special attention to cleaning the hair, ears, nostrils, and other parts of the body in which dust could collect. Clothing should be changed immediately and kept in a separate place until it can be inspected by the radiation team.

3. If it is necessary to send an individual to a hospital or other medical facility before a radiological emergency team arrives, inform the ambulance and medical personnel of the danger of possible radioactive contamination.

4. Cordon off the area, and keep unauthorized people well away from the scene of the accident.

5. Stay out of smoke, fumes, mist, dust, and other visible substances which are airborne.

6. Do not eat, drink, or smoke in the accident area, or use food or drink which may have been contaminated by radioactive material.

7. People who have been in the accident area should be asked to remain in some nearby place until they can be examined by the emergency team for contamination. If they refuse to stay, obtain their names and addresses to give to the emergency team when it arrives.

8. Firefighting tactics appropriate for dealing with toxic chemicals should be employed. Try to keep upwind from the smoke or fumes emanating from the accident.

9. Do not handle debris or any equipment from the accident area, and do not take any souvenirs.

Note: *If the radiological assistance team determines that the packages are intact and there has been no spillage of radioactive materials, the emergency is over.* All normal operations may then commence, and there is no need to employ the above precautionary procedures any longer.

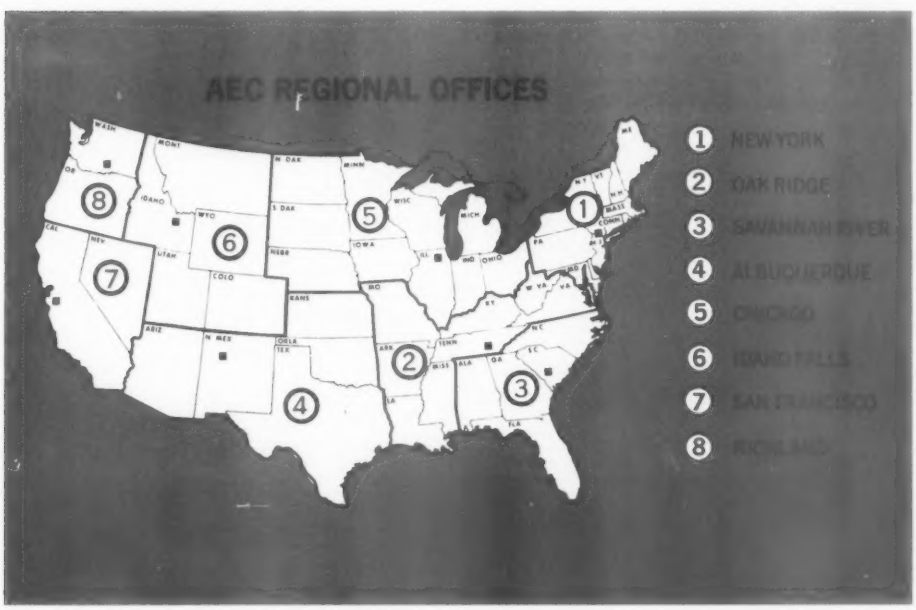
If, on the other hand, the containers have broken open and the team discovers the presence of radioactive material in the area, they will then give the appropriate advice for decontamination procedures and medical attention wherever necessary.

The presence of radioactive materials at civil airports and on board aircraft of any size is now a commonplace occurrence. It is not a cause for alarm, but it is an occasion warranting alert attention on the part of pilots who may some day be called upon to protect crews and passengers from possibly harmful radiation.

Useful free material on this subject may be acquired from USAEC, P.O. Box 62, Oak Ridge, Tenn. 37830. Ask for a catalog of the series, "Understanding the Atom."

The following are on sale by the U.S. Superintendent of Documents, Washington, D.C. 20402:

- *NTSB Safety Regulations, Part 430, Code 1 Federal Regulations, January 1, 1968. $1.75.*
- *Radiological Emergency Procedures for the Non-Specialist, AEC. $.50.*



Aeronautical Fender Bending

Taxiing an airplane may not be regarded as a "critical phase of flight," but it accounts for a surprisingly high number of accidents. The National Transportation Safety Board's latest statistics for a complete year show that in 1969 the general aviation fleet was involved in 168 accidents that occurred while a plane was moving between the runway and the ramp.

These accidents ranged all the way from hooking a wing into a hangar to smashing into another plane. All but three of the 168 accidents involved small fixed-wing airplanes.

Taxi accidents rarely cause any serious injury, but there is often a serious financial loss. And, of course, there is the time-consuming business of having to deal with insurance representatives and official investigators—to say nothing of the embarrassment caused to the pilot, the bad marks on his record, and the possibility of increased insurance premiums for him in the future.

NTSB's files contain two cases which occurred last spring in California that demonstrate two of the more frequent causes of taxi accidents: poor judgment in estimating clearances and excessive speed.

In the first case, a private pilot was off for a pleasure cross-country flight in beautiful VFR weather. At 3:40 in the afternoon he put down for his first stop, landing smoothly at the Oceano Airport. He taxied over to the parking area, and that is where his pleasure flight ended abruptly and expensively.

In attempting to line up beside a parked plane, he swung his Cessna 150 around and slammed his wing into the edge of a hangar building. The plane had only been taxiing at approximately seven miles an hour, but the NTSB report said that "while concentrating on keeping his left wing clear of another airplane, the pilot failed to insure that the right wing would clear the hangar."

Fortunately, the pilot, who was flying solo, suffered no personal injuries, but the NTSB report said that the damage to the buckled wing was substantial and repairs were estimated to be around $1,600.

The second accident, occurring about a week later, took place at Thomson Field, a small private field near Murrieta, California. A pilot had been practicing spot landings, and after his final landing he rolled his Cessna down the runway and onto a grass taxiway leading to the parking area. The grass was wet, however, and when the pilot applied the brakes the plane skidded sideways. He let up on the brakes, then applied them again, but he was not able to get enough traction to keep from sliding into a row of trees. Again, no personal injury, but there was substantial damage to the plane's wing and the NTSB cited as the probable cause of accident "the pilot in command misjudged speed."

The sad factor about both of these accidents is that they were preventable. In the first accident, the pilot could have stopped his plane and opened his cabin door to get a better angle of vision before he turned between the parked plane and the hangar. Or he could have asked for assistance from the fixed base operator. In the second accident, the pilot would have maintained control of his plane if, in his own words, "I had considered the difficulty of stopping an airplane in slippery grass."

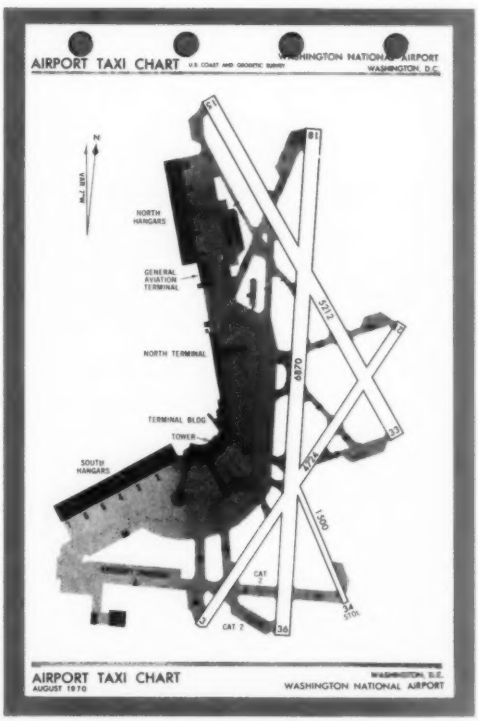
Indeed, the vast majority of these taxi accidents are avoidable and traceable to unnecessary haste. Unfamiliarity with the taxi system of an airport is sometimes a factor, but there are basic procedures which should normally safeguard the pilot from the unexpected.

- Taxi slowly enough so that you can stop or turn the aircraft instantly whenever it might become necessary. The FAA Flight Training Handbook observes that "it is difficult to set any rule for safe taxiing speed," but notes that "the speed should be kept down to where movement of the plane is dependent on the throttle; that is, slow enough so that when the throttle is closed the airplane can be stopped promptly."

In earlier days of aviation, students were instructed to taxi their planes no faster than the pace of a man walking rapidly. That is undoubtedly too slow for today's modern aircraft, but the principle of taxiing at moderate speeds remains the same. Too many pilots still damage their planes because they are taxiing so fast that they cannot make an instant stop or turn.

- Make sure that *both* your brakes are functioning properly before you start. Military flight instructors formerly trained student pilots to check the brake action after starting to roll from the parking place before momentum was built up. That is a good practice for civilians as well. At any rate, you should not take a chance with even one unsatisfactory brake because in a crosswind the weak brake might be the one you need most to keep you on your taxi course.
- Exercise responsible judgment about your aircraft all the time you are taxiing. You—and you alone—bear the final responsibility for the plane's safety. Never follow a lineman's directions blindly, but keep scanning the area to make sure it is clear. Similarly, you may question ground control's taxi directions whenever you think you have a better vantage position than the tower. After all, you should know the capabilities of your plane better than anyone else. If the tower instructs you to turn at a particular spot you may inform him that because of the wing radius your plane is unable to do so safely.

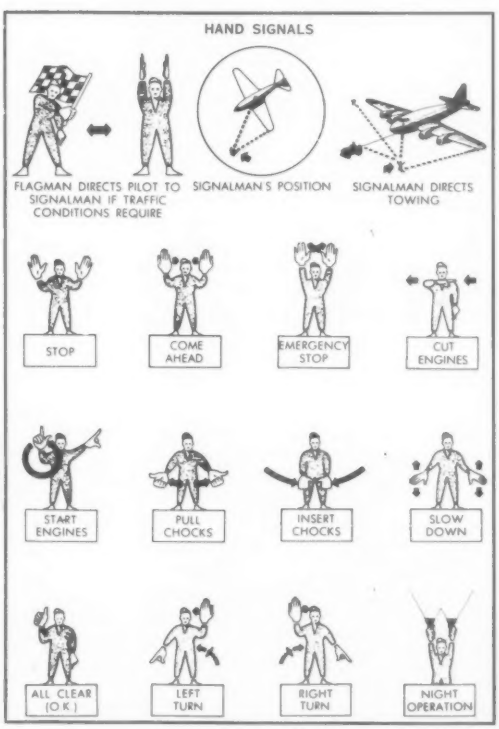
Also it is important to remember that the tower's clearance to taxi does not necessarily mean that it is safe to taxi. You, as pilot, still bear the responsibility for avoiding objects or other aircraft. The tower may call attention to other objects or to construction on the runway, but the tower is not obliged to do so. The obligation is yours to anticipate and avoid any hazards.



FAA taxi charts for 19 of the busier major airports are being issued (on request) on an experimental basis.

Threading your way through a maze of parked aircraft calls for patience and vigilance. Moving vans and trucks are a frequent hazard, and may not be visible to ground control.

Crossing a runway or traversing a tiedown area can be the most accident prone portion of your flight.



Standard ramp hand signals, used by most linemen, should be familiar to all pilots who use busy airports.

A number of smaller aircraft in recent years have been flipped over, causing extensive damage, when they passed too closely behind a jet plane with its engines running. Again, the tower may call attention to the presence of jet blast, but it is not required to do so, and the obligation of remaining away from the rear of jet engines is with the pilot. If he gets too close, he may find himself on his back with his plane on top of him.

• Be extremely careful of making hasty judgments about the distance between your aircraft and other objects. Many pilots have hooked their wings on other planes, on hangars, on gas pumps, and on start-up cars because they took a quick glance at the intervening distance and thought they could make it easily. Unless you are absolutely sure you have enough clearance space, you should stop your plane and ask assistance either from a lineman or perhaps from your own co-pilot—he might have to get out of the plane to obtain a better view. A little precaution here can save many a broken wing.

• If you become disoriented on the taxiway or runway, which can easily happen at a large airport with which you are unfamiliar, ask the tower for help. Some pilots are reluctant to admit their disorientation, but it could be disastrous to roll around a large facility without being aware of the direction of the taxiways and runways.

The tower is more than willing to help a pilot who arrives at a strange airport and will gladly direct him to the parking area. However, most towers expect the pilot to familiarize himself with the local situation before taking off, so he can find his way to the proper taxiways and runways.

Commercial carriers, of course, have charts which map all airports. This is undoubtedly too expensive and cumbersome for the average general aviation pilot, but FAA has recently provided an experimental service of issuing a free packet of taxi charts for 19 busy airports. About 40,000 of these packets have been distributed thus far, and the enthusiastic response indicates that the private pilot indeed wants a chart of the sometimes confusing network of taxiways and runways at large commercial facilities. The FAA is presently studying plans to produce a packet of 50 airport taxi charts for the use of the general aviation fleet.

To obtain this free packet of airport taxi charts, as long as the supply lasts, write to:
Federal Aviation Administration
Cartographic Standards Branch, AT 420
Washington, D.C. 20591

• While taxiing, keep your eyes on the taxiway at all times to make sure that there are no objects in your way. Taxi time is not the moment to be studying maps or flight plans or talking to your passengers. The tower might not even be aware of smaller objects on the taxiway—packages, for instance, which have fallen from ground vehicles—and it is your obligation to avoid them and inform the tower. During low visibility conditions such as the common winter ground fog, the movement of aircraft and vehicles on airports may not be visible to the tower controller; and the pilot, knowing he is on his own, should exercise extreme vigilance and proceed cautiously.

The old S turn taxi procedure which was taught to pilots back in the tail dragger days is still a valuable safety device today. If you make slight "S" turns while you are taxiing, you will be able to keep the entire area ahead in view and you will be able to anticipate any objects or hazards which may come upon you suddenly.

It is natural, after a long and tiring flight, to be eager for the warmth of the pilot lounge and the coffee pot, but those closing minutes of the flight should not be hastened—especially with the kind of haste that makes you waste time on the ground filling out insurance forms and accident reports. ■

Many pilots of small planes, especially experimental, sport and antique, still use the old reliable method of "wing walkers" on each side when taxiing, to avoid hitting people or planes.

Famous
FLYERS

Richard Evelyn Byrd was the first man to see both ends of the earth from the air

THE POLAR EAGLE

Top—from a rampart at his base camp, Little America, Byrd takes a sight on the South Pole. Below—dapper Commander cutting Christmas cake in 1928. First Christmas in the Antarctic was celebrated by Captain Cook in 1773.

Outside the camp stretched nearly five million square miles of the loneliest and most desolate area on earth. Inland from the Ross Sea to the South Pole lay a little known continent devoid of any form of living creature—high plateaus and menacing peaks glistening in everlasting whiteness. Now, because of a man, an expedition and an airplane, the mystery of the Antarctic was no longer fathomless.

In this inhospitable land, a little pocket of humanity, 42 souls in all, separated by 2,300 miles from any other settlement, celebrated Christmas Day 1929 at a base camp called *Little America*. It was a "warm summer day" in the Antarctic, almost warm enough to melt the ice cream dessert. A Christmas tree, wrapped in cotton and decorated colorfully with cigaret papers, cough drops and other knick-knacks, occupied the place of honor. Despite the bleak surroundings, the spirits of the 42 men were high and toasts to each other's courage and character were animated. Taffy Davies, the jovial Welsh physicist of the Byrd Antarctic Expedition, distributed cigars, candy and other gifts.

Seated at one side of the hut, Commander Richard Evelyn Byrd surveyed the festivity and thought back with satisfaction on the past year. Christmas 1928 had been spent on board the flagship of his expedition as he and his vanguard stared in somber amazement at the sheer cliffs of the 100-foot high ice barrier surrounding the entrance to the Bay of Whales and the great adventure that was to immortalize him as an explorer.

Richard Byrd's love of exploration began in his childhood. Born in Winchester, Va., on October 25, 1888, he was the son of an old and respected Virginia family seemingly rooted in the land. But young Richard's eyes were on a distant horizon; at age 12 he recorded in his diary his wish to be the first man to reach the North Pole. Peary preceded him there in 1911, but the youth simply shifted his sight skyward and determined to become an aerial explorer.

An early step in this direction was enrollment in the U.S. Naval Academy at Annapolis, where Byrd was an outstanding gymnast as well as a keen student of navigation. His eagerness to "fly" as an indoor aerialist ended in a bad fall, unfortunately, and a resultant limp which later forced his early retirement from the Navy at age 28.

However, the onset of World War I saw Byrd recommissioned. He persuaded the Navy to send him to the Naval Flying School at Pensacola, Fla. and soon became a skilled pilot and instructor. Later he gained the attention of his superiors by designing flight navigational instruments for long distance piloting, including a "bubble" sextant (as in a carpenter's level the bubble was used for leveling the sextant when the horizon was not visible).

Promoted to Lt. Commander in 1924, Byrd was assigned to an exploration of the northern Polar region headed by Donald McMillan. The experience enabled Byrd to plan an aerial conquest of the North Pole, and two years later he brought a 50-man privately-funded polar party to Spitzbergen, Norway. After feverish preparations, Byrd and his co-pilot, Floyd Bennett, managed to take off in a heavily loaded Fokker tri-motor, and outraced the famed Roald Amundsen (who was readying a dirigible) to the Pole.

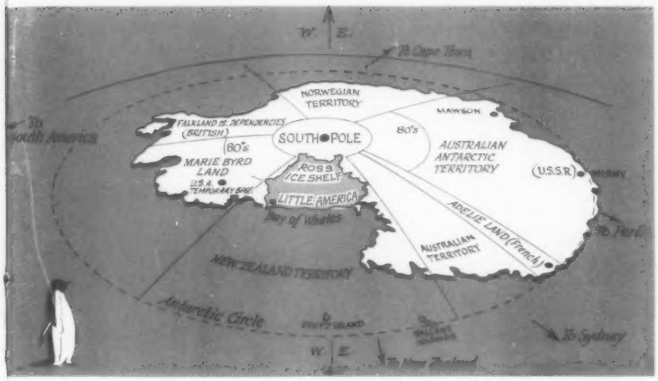
Byrd's hero, Admiral Peary, had been out of touch with the world for 429 days during his overland conquest of the Pole; Byrd had flown there and back in nine hours.

After a hero's welcome in the United States, Byrd threw his energy into the "Great New York to Paris Air Derby of 1927." Although Lindbergh beat him to Paris, Byrd made the transatlantic flight anyway, again in a Fokker tri-motor, accompanied by George Noville, Bernt Balchen and Bert Acosta (Bennett had been critically injured in a test flight). Bad weather forced them to land in the water off Normandy and they actually swam ashore to France, but later were able to fly on to Paris.

Immediately on his return, Byrd began preparations for the greatest adventure of all—an aerial conquest of the Antarctic. This time the expeditionary force was to consist of over a hundred men, nearly as many sled dogs, four ships and three airplanes (the inevitable tri-motor was a Ford this time, in appreciation of Edsel Ford's financial backing). The other two aircraft were single-engined Fokker and Fairchild monoplanes.

Flagship of the fleet was a polar ice ship, the "Samson," an ancient wooden sailing vessel, renamed the "City of New York," supported by a steamer and two Norwegian whalers. After nearly a year of planning, organizing and fund raising (the overall cost was to reach nearly $1 million), Byrd put to sea in October of 1928, noting in his journal that the fund included $4.35 contributed by his son Dickie, 8, from his savings.

On his first Christmas in the Antarctic, Byrd entered the Bay of Whales and prepared to locate a site for his base camp, *Little America*, on the Ross Ice Shelf, about 750 miles from the South Pole. The first month was taken up with sledding equipment and



Byrd's Antarctic expedition approached the Pole from New Zealand, along the East-West meridian (180°). Huge icebergs hindered his ship's progress.

The big Ford plane was named for Floyd Bennett, copilot on Byrd's North Pole expedition. Note three-bladed prop on nose, two blades under wing. Maintenance was a bitter chore with temperatures dipping below minus 75°F.

Courtesy of The Henry Ford Museum, Dearborn, Michigan

supplies from the ships to the base, building their "city of ice" and constructing radio towers to keep them in touch with the rest of the world and their own exploratory teams.

After a few trial flights the airplanes were bedded down for the onset of the South Polar winter. By the end of April the sun no longer rose (each man at the base had a daily 15-minute sunlamp treatment), and all exploration ceased.

While gale winds raged and temperatures dropped to 70° below zero F. outside, the "city" was a beehive of activity. Overland trips as well as flights were planned down to the last detail. Crews were chosen, cache points located, alternate routes identified.

In September, daylight returned and temperatures and spirits rose. Geological parties moved out on field surveys and reported back by radio. Supplies and fuel for the aerial assault were cached. Practice flights accustomed the aviation teams to polar conditions. (Among other chores, it was necessary to drain engine oil immediately after landing, and to warm the oil and return it before takeoff. If the takeoff were delayed, the process had to be repeated. The smell of engine oil was absorbed in their furs and became their inseparable companion.)

On the afternoon of November 28, 1929, Commander Byrd climbed into the *Floyd Bennett*, accompanied by Bernt Balchen, pilot, Harold June, co-pilot and radioman, and Ashley McKinley, photographer and aerial surveyor. The huge (for its day) Ford had a wingspan of 70 feet, an overall length of nearly 50 feet. Power consisted of a 525 hp Wright Cyclone in the nose, and two smaller engines in the wing, totalling less than 1,000 hp. With a capacity of 15,000 lbs. the Ford had a top speed of 122 mph.

Weight was a primary consideration, for the path to the South Pole was barred by the Queen Maud range of mountains, whose peaks were estimated as high as 15,000 feet. Byrd intended to fly through a glacial pass, preferably over the Axel Heiberg glacier (elevation 10,500 feet).

The cabin of the aircraft was so fully laden that it was difficult for anyone to move about. In addition to cameras and radio equipment, there were rows on rows of gasoline cans, sleeping bags, food sacks, tents, clothing, a sledge, drain funnels, etc. As navigator, Byrd was seated aft with his charts; engine noise so filled the air that it was necessary for him to relay messages to the pilot over a wire trolley. With the magnetic compass of little use near the Pole, he depended mainly on the sun compass and the drift indicator for navigation. The sun compass utilized the shadow of the sun to indicate north, when the instrument was properly set.

After a flight of about five hours, the camp of the geological party near the formidable Queen Maud Range was sighted. Supplies were parachuted down, and the flight continued. The thought uppermost in everyone's mind was "getting over the hump".

The pass over Axel Heiberg Glacier had been mapped by Amundsen on his overland trek to the Pole; it was surrounded by towering peaks well above the ceiling of the Ford tri-motor, but the actual width or space for maneuvering the aircraft within the pass was not known. Storm clouds shrouded the Heiberg pass as they approached, and at the last moment Byrd gambled on an unknown pass to the east—the Liv Glacier and won.

Now the task of pulling the "Floyd Bennett" up to maximum ceiling began in earnest. As pilot Balchen entered the pass at 9,600 feet he called out to Byrd to lighten the aircraft. "Overboard—200 pounds!"

What should be discarded—fuel or food? After only a slight hesitation Byrd ordered a food bag dropped. Dumping 250 pounds of food enabled them to climb to 10,000 feet and clear the pass.

They were now flying over an immense white plateau which stretched some 300 miles southward to the Pole, and ascended to 10,300 feet, according to Amundsen's records. They gradually increased their altitude to 11,000 feet. At 1:14 a.m. their calculations showed they were over the South Pole. There was nothing to mark the spot, no sight of the flags planted there in 1911 by Amundsen and Scott; only an unlimited horizon. An American flag weighted with a stone from Floyd Bennett's grave was dropped from the airplane.

Soon the aerial explorers were dashing for home base, hoping to pass over the "hump" before the storm worsened. With 11 hours of fuel gone they were able to fly over the Heiberg Glacier at 12,000 feet. After diverting eastward to photograph portions of the Ross Ice Shelf, they landed at their refueling base without incident. Then a straight course was laid for *Little America*, whose radio spires came into sight at 10 a.m.

Within a few minutes, radio messages flashed the story to the entire world: Byrd had conquered the South Pole! Moreover, his team had photographed vast areas of the Antarctic never seen by man, and collected invaluable scientific information. In the days ahead he would make more flights, send out more expeditions (one led to the discovery of an unknown land mass named Marie Byrd Land after his wife), assemble volumes of data, struggle alone with icy adversity—but nothing would ever replace this day's sense of accomplishment—the knowledge that he had been the first man ever to see both poles of the earth from the air.

The second Christmas in the Antarctic found the expedition full of homeward thoughts. Preparations were now underway for breaking camp; within eight weeks all hands would be aboard the ships in the Bay of Whales, headed north.

But for the moment, the feelings of the 42 men celebrating Christmas in "Little America" were a mixture of nostalgia and pride. Scarcely a man there had not experienced danger and hardship, and all had survived. With Byrd, they shared a sense of knowing that not only had they opened up a new continent to the world, but also they had pioneered a new era of exploration in which man was no longer bound to the earth.

Byrd was a practical man as well as a dreamer, and he spoke of the Antarctic as a potential ice locker for storage of human goods. But in another mood, he wrote of the Polar adventure as "*feeding man's deep yearning for mobility, carrying us to a new place, where wealth and fame and power count for nothing, and where men will not strut because there are no women about.*"*

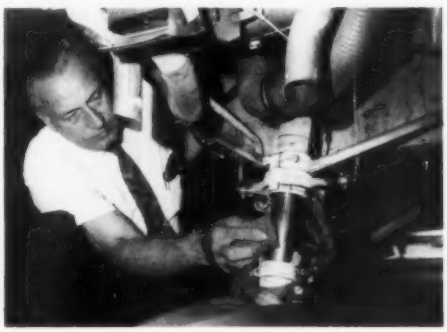
In the Antarctic only penguins strut, and they cannot fly. ■

*R. E. Byrd, *Little America*.

Personal Inspections

Third in a series of articles on general aviation maintenance describing a non-technically oriented pilot's detailed scrutiny of one portion of his aircraft's anatomy. Personal inspections are voluntary, recommended at yearly intervals halfway between the required annual inspections.

"Keep'em clean" is the first commandment of care for all landing gear—including tires. Left—air-oil struts should be wiped down and checked for nicks and scratches which could damage o-rings. Right—the **amount** of tread on a tire may be of less interest than the **way** it wears.



If any part of the aircraft is in constant use, day and night, it is the landing gear that supports the entire load. The gear is checked perfunctorily in most preflight walkarounds, but if the tires are not flat on the ground or the nose is not resting on the prop, little attention is given to the undercarriage. The modern equipment is remarkably durable, and with care may outlast the airplane, but a hard landing or a hydraulic leak can weaken it dangerously.

The first tip given to me by a GADO inspector on checking landing gear was to pay more attention to the sidewalls and the contour of the tires than to the depth of tread. Unless the tires have been handed down from one plane to another, landed repeatedly on rubble, or braked ferociously, the tread is not likely to wear out. But if the tires have run over hardware dropped on the runway or ramp, they may have suffered dangerous cuts that could lead to blowouts on the next takeoff or landing. The tires of aircraft that are parked outdoors (particularly without wheel fairings) may also suffer sidewall deterioration from exposure to sun or severe temperature variations. This will show up as "crazing" or checking of the rubber. A good tire paint will help prevent such weathering and also protect against chemical damage (from battery acid, oil, gasoline, etc.) that might occur inside a repair hangar.

The good inspector pointed out that my landing gear, like that of many Sunday pilots, was so caked with old mud that it was difficult to determine the condition of the tires without first resorting to a scrub brush and pail. Hosing out the debris on the inside as well as exterior of the fairings was also recommended as a prelude to inspection. This unquestionably helped me locate several loose bolts that were responsible for the wobbly condition of one of the fairings.

Wheel fairings *do* improve the airspeed and looks of an airplane, but they also trap mud and slush, which can freeze in wintertime and prevent the tire from turning freely—a real hazard on takeoff and landing. The fairing may also hide defects in the tire unless one takes the trouble to roll the airplane until all of the tire has been exposed.

I was urged to scrutinize the tread for signs of uneven wear due to tire imbalance, over- or under-inflation. Tires should always be balanced when installed or replaced on the wheel; unbalanced wheels cause an irritating and sometimes harmful vibration. Occasionally one of the balancing weights will drop off after a hard landing: this is something a pilot can check on if he has suspicions about wheel vibration.

Tire pressure, I learned, is a precise factor in the absorbing quality of the landing gear and should not be varied for sake of a smoother ride, or any other reason. Abnormal crown wear is a symptom of overinflation; underinflated tires tend to wear more at the edges and crack at the sidewalls. Underinflated tubeless tires also tend to leak around the rim.

On Your Knees

When I had finished with the tires and fairings, (and my knees were beginning to ache with unaccustomed kneeling) my attention was directed to the brake system. I checked the hydraulic lines and fittings for evidence of leaks or cracking. There was nothing else I could do about the brakes except climb in the airplane, start it up and taxi around, testing for evenness of brake response.

As I was about to shut down I was reminded of the parking brake. This is almost a misnomer, since many pilot/owners prefer not to use the parking brake when leaving the airplane, but rely on tie-downs. This prevents brake freeze-up on frosty mornings. But the parking brake is often used to hold the airplane in place during the preflight run-up, and since this is a time when the pilot's eyes are apt to be glued to the instrument panel, it is important that the brake does not allow the aircraft to creep forward and endanger others in the area.

Back on the ground I was again positioned by my mentor into a squatting stoop, approximately a wing's span directly in front of the airplane, and told to contemplate such items as aircraft attitude, wheel alignment, and wing tilt. Since my airplane's nose seemed a little high, we took a close look at the nose gear, which is fitted with an oil-air, or oleo type shock absorber. The strut was inflated a little on the high side—two to four inches of strut showing is about right for most smaller planes—but not enough to do any harm. (On a marginally short runway, this could be a factor, since the airplane does not pick up speed as quickly as usual when the nose is raised.)

Low or flat struts, on the other hand, can really cause trouble; the nose-gear attachment members are actually part of the engine mount assembly, and inadequate cushioning of ground impact can damage the engine mount, perhaps to fail later. A pilot or owner can legally service the oleo strut, but I was advised not to tackle it alone until I had acquired some experience from watching, as well as the necessary equipment. The pressure chamber is usually filled with hydraulic fluid, then charged with nitrogen to the recommended level. Nitrogen is preferred to compressed air, since the latter may contain enough moisture to cause trouble in winter.

Wheel alignment, as observed from my previous squatting position, is essentially a matter of noticing whether the wheels line up properly with the airplane and whether they toe in or splay out unevenly. Any unusual "stance" should be reported to a mechanic for checking. Likewise, the wingtips should be at equal heights above ground if the main gear is in good condition.

The main gear of most light high-wing planes like mine is a simple spring steel leaf or tubular rod attached to the fuselage frame. I checked the attachments at either end for loose or cracked fittings, and for wrinkling of the fuselage skin (a possible indication of buckling). Low-wing planes usually have air-oil type landing struts attached to the wing frame; their extension should be compared.

If I still had my old plane with a steerable tail-wheel, I would have examined the steering action, the swivel bushing, and the small springs on either side of the wheel which build flexibility into the system, so that the pilot can still turn the rudder even if the tail-wheel is stuck in a rut. All of these parts are vulnerable to wear because of hard use from frequent landings on rough ground.

If I had already bought my *new* plane, with retractable landing gear, I would have been even more particular about keeping the gear clean and oiled. To ease this burden, I probably would have formed an aversion for sloppy runways, and learned to taxi around pot-holes or slush. And I would have taken up the GADO's offer of sending one of their specialists up with me to run through the emergency gear actuation procedure.

As it was, I found myself observing the ground more alertly than usual as I taxied what was certainly the airplane with the cleanest landing gear on the ramp toward the runway. I felt a little self-conscious but also a little proud, like a kid in a Sunday-best outfit. I also made a mental note that for non-squatters like myself a key piece of equipment for examining the undercarriage might be a milking stool. ■

Retractable gear means added airspeed, but it also adds to inspection list items such as gear doors, locks, hinges, and cover plates.

Pilot BRIEFS

■ PILOT REPORTS. Flyers in eastern United States are helping FAA formulate standards for improving the conspicuity of smoke stacks which are being built these days as high as 1,000 feet above ground level. Several stacks have been obstruction lighted with a new flashing white strobe light system. Pilots planning to fly in the areas of strobe-lighted stacks are being given self-addressed stamped postcard questionnaires by flight service stations and requested to report on how well and how soon they can sight these chimneys. Pilot reaction is being analyzed to help determine the effectiveness of the new warning system.

■ CALL TANGO. Air taxi and commercial operators certificated under FAR Part 135 are now under a separate category for air traffic counting purposes. Previously the only recognized categories were general aviation, air carrier or military. Under the new category of "air taxi" these operators are asked to prefix their normal aircraft identification with the phonetic word "Tango" (for taxi) when making initial contact with ATC or when contacting on a new frequency. The normal "N" number should be prefixed with the letter "T" on flight plan filing (TN 9464A). The subject is further explained in Advisory Circular AC 90-55.

■ WHO PAYS FOR WHAT when an FAA facility must be moved because of airport improvements is clarified in a revision of Advisory Circular AC 150/5300-7A. Discussed is responsibility for the cost of relocating, replacing and modifying Class I facilities (those located on and used exclusively in support of the airport, such as control towers, landing systems and lights); and Class II facilities (those which serve an extended area but which are located on the airport for convenience, such as air route traffic control centers, VOR's and flight service stations.)

■ LIGHTING UP. Advisory Circular 150/5345-29A, dealing with FAA specifications for Airport Taxiway Centerline Lights, has been revised and a provision added for photometric tests of the light assembly. The circular establishes the performance requirements and construction details for semiflush inset light assemblies used for lighting airport taxiway centerlines.

■ SCHOOL DIRECTORY. All FAA certificated aviation maintenance technician schools (formerly mechanic schools) as of July 1, 1971, are listed in a revised Advisory Circular AC 147-2H. Certification by FAA indicates that the school meets the requirements of FAR 147 for the ratings issued. Additional information about a specific school should be directed to the school at the address listed.

■ Advisory Circulars mentioned in this column are available free from the DOT/FAA Distribution Unit, TAD 484.3, Washington, D.C. 20591. Order by title and number.

Immunity for near-midair reports may be discontinued

FAA's recent policy of granting immunity from enforcement action to persons reporting near midair collisions terminates on December 31, 1971. Under a temporary policy, instituted in 1968 and extended for three successive years, FAA took no adverse action against any pilot or controller reporting a near midair collision, even though subsequent investigation disclosed he had violated a regulation.

Elaborate analysis of the 1968 data, including contributing causes, pinpointed problem areas and resulted in recommendations for minimizing the incidents. Data compiled during subsequent years substantiated the first study, but few significantly new facts are being uncovered. However, many safety-oriented airspace actions and proposals, resulting in part from the statistics gained by the reports, have taken place. These include installation of TCA's, lowering the floor of positive control airspace, raising the ceiling of airport control zones from 2,000 feet to 3,000 feet, and the proposed standardization of the traffic pattern at uncontrolled airports.

FAA will continue to encourage near-miss reporting in any event. Suspension of the immunity clause is not expected to result in large numbers of adverse actions against reporting pilots. Such actions are rare and are taken only in cases of flagrant and willful FAR violations.

Ecologically safe fog dispersal methods undergoing tests

FAA has awarded two contracts recently to investigate various methods of dispersing airport fog, one of the most dangerous and annoying weather elements to plague pilots.

Dow Chemical Company of Midland, Mich. has completed the first part of a two-phase study of the effectiveness of certain ecologically safe chemicals known as polyhydrics. The study was conducted as part of the U.S. Naval Weapons Center's "Project Foggy Cloud IV" at the Arcata-Eureka Airport near McKinleyville, Calif. Arcata-Eureka is located along the coast where fog is a frequent visitor.

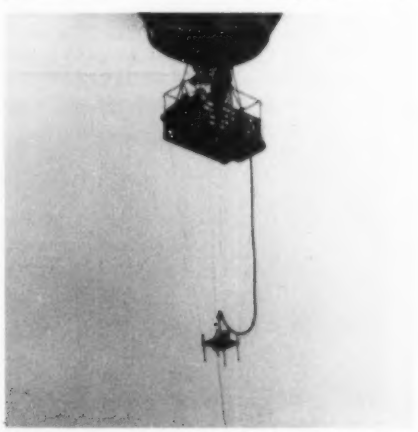
During the test small quantities of chemicals were sprayed into the fog from a platform attached to a balloon tethered 200 to 500 feet above the ground. The liquids were applied under pressure onto a centrifuge, which spreads drops over a known test area. A portion of the fog condensed and fell as rain.

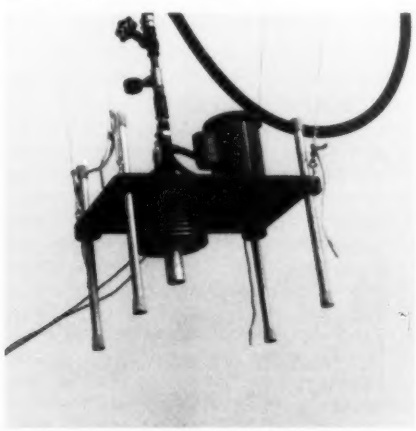
The amount of fog dispersed was measured, and preliminary results are encouraging. Balloons were used in the tests for purposes of convenience; actual application will be from aircraft or ground-based devices. Additional Dow tests are scheduled to be held at Freeport, Tex., during 1972, with a final report to be released by summer of 1973.

Under a second contract Northwest Environmental Technology Laboratories, Inc. (NET) of Bellevue, Wash., will measure the effectiveness of commercial airborne seeding methods in use at two Washington State airports with severe winter fog problems.

Three separate seeding techniques for dispersing warm fog (above 32°F.) or cold fog are being used. At Seattle-Tacoma Airport the "seeder" dispenses small quantities of polyelectrolyte chemicals into the fog at low altitudes near the target runway. At Spokane crushed dry ice is spread from small planes into cold fog upwind of the runway at fog-top altitudes; for warm fog a similar application is made of urea and polyelectrolytes.

Fog densities will be measured on the ground and in the air before, during and after the seeding, and the program will be photographed from the air and ground. Reports on the NET studies will be released late in 1972.





In the Dow fog dispersal tests from a tethered balloon, liquids were applied under pressure onto the centrifuge (right), then onto the fog, part of which condensed and fell as rain.

KILL DEVIL. The famous hill at Kitty Hawk, N.C., from which the Wright brothers launched the first successful powered flight on December 17, 1903. Pilots from all over the country annually attend a fly-in commemoration on December 17, preceded by the famous Man Will Never Fly party on the eve of this anniversary. This year tribute was paid to the late Ralph Whitener and his successful efforts to install an airstrip at Kill Devil.

Leasing data, flight plans, may be required for large aircraft

Two additional rules for heavy general aviation aircraft (over 12,500 lbs.) and turbine powered multi-engine planes have been proposed by FAA as part of a program to tighten the general operating safety requirements for this type of aircraft. The actions follow recommendations made by a nine-man DOT/FAA task force investigating charter aircraft services earlier this year.

Notice 71-35 (Docket 11464) proposes that a lease or conditional sales contract for these large aircraft be required to include a "truth-in-leasing" clause identifying the person responsible for operational control of the aircraft and requiring him to certify that he understands his responsibilities under the Federal Aviation Regulations. FAA would like comments before January 28, 1972 on the above proposal and also on the possibility of issuing an advisory circular with suggestions for appropriate truth-in-leasing clauses.

A second proposal, Notice 71-33 (Docket 11451) would make flight plans (VFR or IFR) mandatory for most operations of these aircraft (heavy or multi-engine jet). Present regulations require flight plans only for IFR operations. Flight plans provide route information and enable search and rescue operations to be initiated promptly in case of crash or forced landing. Comments on this proposal should be submitted by January 20, 1972. Write FAA, GC-24, 800 Independence Ave. S.W., Washington, D.C. 20591.

December, January Issues Combined

The current FAA Aviation News is a combined December 1971/January 1972 issue. Regular monthly publication of this magazine will be resumed in February.

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Airborne Crash-Finders

In the article "Looking with your Ears" (FAA AVIATION NEWS, August 1971) your use of the term CPI (crash position indicator) seems to differ from the military vernacular. CPI's, I thought, were locator beacons externally mounted on military aircraft, which deploy at point of impact. Constructed of plastic foam in a foil shape, the unit is waterproof and floats in the case of a water ditching to mark the crash site.

L. W. Gregaire
Buffalo, N.Y.

The term "crash position indicator" (CPI) is presently being used by the Civil Air Patrol to refer to airborne direction-finding equipment specifically designed to find a downed aircraft which is equipped with an ELT (emergency locator transmitter)—the generic term for this type of equipment.

It is entirely possible that CPI was used by the military at some time in reference to a deployable locator beacon, but under the existing FAA specifications deployable transmitters are included in the classification "automatic-deployable" (ELT-AD). ELT units (ELT-S) which are designed for use on overwater flights, are water resistant and self-buoyant, but not necessarily automatically deployable because they are often attached to life rafts.

• Beltless Parachutists?

While browsing through the August 1971 issue of FAA AVIATION NEWS, we noticed a noteworthy omission in the page 14 news item dealing with the new seat belt rule. The item, as it appears, only mentions children under two years of age as the exception to the requirement, but does not mention that sport parachutists are also not required to have a seat belt fastened during takeoff.

Jerry Rouillard
U.S. Parachute Association

Mr. Rouillard is in error. Although sport parachutists are *exempt from the requirement for occupying a seat in the aircraft, they definitely* are required *to use safety belts on takeoff and landing. FAR Section 91.14 as amended by Amendment 91.89 (effective 30 August 1971) specifically states: ". . . this amendment adds a provision which permits jumpers engaged in sports parachuting to use the floor of the aircraft as a seat. However, in the interest of safety, we consider it necessary that sports parachute jumpers use safety belts, particularly since it is not uncommon for the door of the aircraft to be removed during such activities."*

• Foam and a Prayer

It just occurred to me to tell you my experience August 1, when the actuating rod on my Cessna 320E Executive Skyknight failed and the nose gear would not descend.

I had released the landing gear lever to down position for an intended landing at Whiteville, N.C. but had to abort the landing when the nose gear would not come down. I flew on to the Charlotte, N.C. airport where I knew the facilities would be better for an emergency like this.

Mr. Ronald Painter was the air traffic controller in the Charlotte tower and I can truthfully say his calm manner and experience (he is also a pilot) were of great assistance to me—perhaps he saved my life and those of my passengers, my wife and daughter. For an hour I circled the Charlotte airport while Mr. Painter suggested various ways for bringing or forcing the gear down; meanwhile he arranged to stop all traffic at the airport and foam the runway; also fire fighting equipment and medical aid were standing by.

The gear would not come down and after a prayer I attempted the landing on the main wheels, touching down at the lowest possible flying speed. The nose fell forward, we slid completely through the foam, and came to a rest 50 yards away. No one was injured, the damage was minimal for this type landing, and I believe Mr. Painter should be commended for his help in this tense and frightening experience.

S. Lee Braxton
Tulsa, Okla.

Assisting pilots to safe landings is a routine responsibility of FAA's Air Traffic Service. Over a recent 30-day period, 280 planes, with 683 persons aboard, were given inflight assistance by various means including radar, DF (direction finding) equipment, and VOR and geographical orientation. Flight service stations recorded 150 assists, towers 97, and en route centers 33. As usual, bad weather, including poor visibility, caused most of the problems.

• Over the Waves

When I fly over water (such as to the Bahamas) I rent overwater safety gear—at least a Mae West life preserver for every one in my Cessna 172. As a water skier I have ski belts and vests at home but am told these are not acceptable for overwater flights. Is this correct? What FAR's cover these requirements? I would like a life jacket for flying that is as flexible, comfortable and compact as waterski jackets are.

James E. Johnson
Alderson, W. Va.

The FAR's (Part 91.33) actually require approved flotation gear only for overwater flights (out of gliding distance of land) which are operating for hire; *the standards for such gear are defined in Part 37.178, TSO C72a. However, in the interest of security for your passengers you, as a private pilot-in-command, might want to provide life preservers of a type to offer maximum protection in case of a ditching. Where required, items such as cushions, arm rests, and pillows are approved (if sufficiently buoyant) but many pilots prefer equipment which would keep a person upright in the water even if he were dazed, injured or unconscious. There are undoubtedly a number of waterski vests which would meet these requirements. Your nearest FAA GADO (General Aviation District Office) may assist you in determining the acceptability of personnel flotation devices.*

• Support Your Local Pattern

Before expressing my opinion of the proposed uncontrolled airport pattern entry procedures, I wish to request that you review the old 45° method. According to FAA AVIATION NEWS (August 1971) the objection to the old entry is the required bank away from the pattern on the turn downwind.

Two advantages of the old system are apparent to me: (A) The pilot has a comprehensive view of the entire pattern while on the inbound 45 and, if he flies according to the book, he has plenty of time to observe and note the position of traffic already in the pattern. (B) Traffic in the pattern is aware of *one* likely entry point of inbound traffic and can be more alert in that area.

The disadvantages of the old system would seem to be mainly related to the fact that it was not mandatory. By far the greatest number of mid-airs occur on final approach. This has no relationship at all to a momentary loss of contact entering mid-downwind. It does relate to aircraft making straight-in approaches, random pattern entries and those flying at non-standard pattern altitudes. I would like to see the 45° entry become the only legal VFR entry to an uncontrolled airport, with a standard pattern altitude for all airports.

The new proposal has two definite good points: (A) It outlaws VFR straight-in approaches. (B) It establishes a standard pattern altitude. Everything else about the proposal is ridiculous. The fact that many pilots enter the pattern at random now does not justify legalizing random pattern entries. I suggest that, before instituting any radical new policies, you enforce the existing practice rigidly.

Richard W. Laird
Palos Verdes, Cal.

• Yes, Square the Circle!

Considering the crowded sky around uncontrolled fields, even those with UNICOM, I agree wholeheartedly that an up-to-date traffic pattern rule is needed.

I was heading 280° and landing on runway 27; a straight-in sure would have been convenient; in this case it might have been safer. After flying parallel upwind (approximately three miles out) with the airport off to my right I then made a right 145° turn to use the accepted 45° entry to downwind procedure. While I was banked in my turn my flight path was crossed twice by other landing aircraft; first by a direct base leg to final approach, and then by a cross-the-field 45° entry. Note both aircraft were converging from my left. Good fortune permits me to write this letter as they were twenty-five feet below my flight path. Upon landing and heatedly questioning the other pilots I learned they had not seen me as I had not seen them until it was "too late"; we were all concentrating on the airfield and our landings.

You have my vote, "Yes, Square the Circle."

Vincent Lepka
Cleveland, O.

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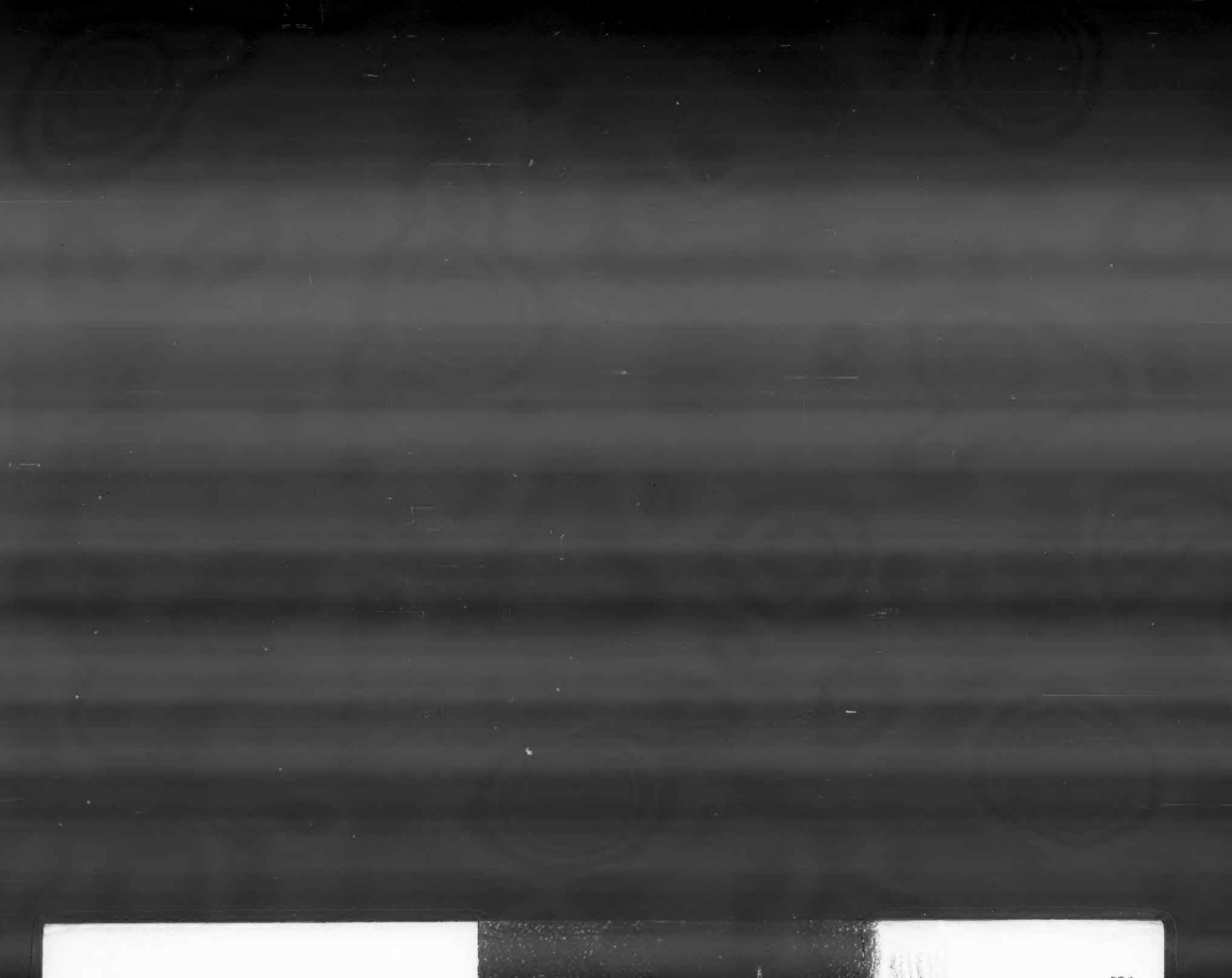
Suggested by Jerry W. Forsythe
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